

REMARKS

Please reconsider the application in view of the above amendments and the following remarks. Applicants thank the Examiner for carefully considering this application, and for indicating the acceptance of the drawings filed on September 30, 2003.

Disposition of Claims

Claims 1-5, 8, 11, 15, 18, 19, 22, 25, 28, and 31-39 were pending in the present application. By way of this reply, claim 28 is cancelled without prejudice or disclaimer. Also by way of this reply, claims 40-42 are added. Accordingly, claims 1-5, 8, 11, 15, 18, 19, 22, 25, and 31-42 are now pending in the present application. Claims 1, 11, and 25 are independent. The remaining claims depend, either directly or indirectly, from claims 1, 11, and 25.

Claim Amendments

By way of this reply, claims 1, 11, 25, 31, 32, 34, 35, 37, and 38 are amended for clarification. Applicants respectfully assert that no new matter has been introduced by way of these amendments as support for these amendments may be found, for example, in paragraphs [0031], [0035], [0039], [0052], and [0061] of the originally filed specification, and in the corresponding figures.

Rejections under 35 U.S.C. § 101

Claim 28 stands rejected under 35 U.S.C. § 101 as being directed towards non-statutory subject matter. By way of this reply, claim 28 is cancelled and thus the rejection is moot as to claim 28. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 112

Claims 31, 32, 34, 35, 37, and 38 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. By way of this reply, claims 31, 32, 34, 35, 37, and 38 are amended to recite either (i) execution of the first simulation image is performed in lock step with execution of the second simulation image; or (ii) execution of the second simulation image is performed in lock step with execution of the first simulation image. Accordingly, withdrawal of this rejection is respectfully requested.

Rejections under 35 U.S.C. § 103

Claims 1-5, 8, 11, 15, 18, 19, 22, 25, 28, 34, and 39 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,141,630 (hereinafter “McNamara”), in view of U.S. Patent No. 6,871,298 (hereinafter “Cavanaugh”). By way of this reply, claim 28 is cancelled and thus the rejection is moot as to claim 28. As for the remaining claims, for the reasons set forth below, this rejection is respectfully traversed.

As an initial matter, Applicants believe the Examiner inadvertently listed Cavanaugh instead of U.S. Patent No. 6,182,258 (hereinafter “Hollander”) in the introduction of the rejection. *See*, Action at page 4. Accordingly, this response is based on the assumption that claims 1-5, 8, 11, 15, 18, 19, 22, 25, 34, and 39 stand rejected as being unpatentable over McNamara, in view of Hollander. If Applicants’ assumption is incorrect, Applicants respectfully request the Examiner explicitly identify the prior art references being used to reject claims 1-5, 8, 11, 15, 18, 19, 22, 25, 34, and 39.

MPEP § 2143 states that “[t]he key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in KSR noted that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit.” Further, when combining prior art elements, the Examiner “must articulate the following: (1) a finding that the prior art included each element claimed, although not necessarily in a single prior art reference, with the only difference between the claimed invention and the prior art being the lack of actual combination of the elements in a single prior art reference...” *See*, MPEP § 2143(A).

If the Examiner does not produce a *prima facie* case, Applicant is under no obligation to submit evidence of non-obviousness. The initial evaluation of *prima facie* obviousness thus relieves both the Examiner and Applicant from evaluating evidence beyond the prior art and the evidence in the specification as filed until the art has been shown to suggest the claimed invention. *See*, MPEP § 2142.

McNamara discloses a system and method for verifying a circuit design. A design description of the circuit and a reference description of the circuit are used to generate a simulated design model (SDM) of the circuit and a simulated reference model (SFM) of the circuit, respectively. A test bench (*i.e.*, a simulator) accepts a test vector, concurrently applies the test vector to both the SDM and the SFM, and then compares the output of the SDM and the output of the SFM. The test vector pertains to a specific area of the circuit. By comparing the output of the SDM and the output of the SFM, errors in said area of the circuit can be identified, and additional test vectors can be created to further isolate the error and/or cover additional areas of the circuit. *See*, McNamara at Abstract, at column 5, lines 49-59; column 6, lines 60-67; and column 7, lines 1-37; and at Figure 5.

Hollander discloses a system and method for verifying a circuit design. A test generator module creates verification tests from a functional description of the circuit. These verification tests are available to a simulator of the circuit design. *See*, Hollander at Abstract.

Amended independent claim 11 explicitly requires, at least: (i) a first simulation image and a second simulation image exist; (ii) a reference simulator execute the first simulation image to generate golden data; (iii) a test simulator execute the second simulation image to generate test data; and (iv) a portion of the test data be compared with a portion of the golden data to debug the test simulator. Amended independent claims 1 and 25 have similar requirements.

As discussed above, McNamara and Hollander are solely focused on verifying a circuit design through simulation. Moreover, McNamara and Hollander attribute any error or mismatch in the output(s) of the simulation to one or more errors in said circuit design. Thus, it is implicit that McNamara and Hollander assume the simulator itself is operating correctly. In other words, McNamara and Hollander do not even contemplate the source of a simulation error actually being a flawed simulator (*i.e.*, instead of a flawed circuit design under simulation). Accordingly, as McNamara and Hollander assume a flawless simulator, McNamara and Hollander do not and cannot teach or suggest debugging a simulator. In other words, McNamara and Hollander do not satisfy at least requirement (iv) of the amended independent claims.

In view of the above, McNamara and Hollander, whether viewed separately or in combination, do not teach or suggest each and every limitation of amended independent claims 1, 11, and 25. Thus, the cited art does not support a rejection of amended independent claims 1, 11, and 25. Claims 2-5, 8, 15, 18, 19, 22, 34, and 39 depend, either directly or

indirectly, from independent claims 1, 11, and 25. Accordingly, the cited art also does not support a rejection of claims 2-5, 8, 15, 18, 19, 22, 34, and 39, and withdrawal of this rejection is respectfully requested.

Claims 33 and 36 stand rejected as being unpatentable over McNamara, in view of Hollander, and in further view of U.S. Patent No. 5,812,416 (hereinafter “Gupte”). For the reasons set forth below, this rejection is respectfully traversed.

As discussed above, McNamara and Hollander do not teach or suggest each and every limitation of amended independent claims 1 and 11. The Examiner asserts Gupte discloses generating golden data before test data. *See*, Action at page 7. Even assuming *arguendo* the Examiner’s assertion is proper, Gupte does not teach or suggest what both McNamara and Hollander lack.

In view of the above, McNamara, Hollander, and Gupte, whether viewed separately or in combination, do not teach or suggest each and every limitation of amended independent claims 1 and 11. Thus, the cited art does not support a rejection of amended independent claims 1 and 11. Claims 33 and 36 depend directly from independent claims 1 and 11. Accordingly, the cited art does also not support a rejection of claims 33 and 36, and withdrawal of this rejection is respectfully requested.

New Claims

By way of this reply, claims 40-42 are added. Applicants respectfully assert that no new matter has been added by way of these amendments, as support for these additions may be found, for example, in paragraphs [0031] and [0061] of the originally filed specification, and in the corresponding figures.

As discussed above, the cited art does not support a rejection of amended independent claim 11. Thus, amended claim 11 is allowable over the cited art. New claims 40-42 depend directly from independent claim 11 and thus are allowable for at least the same reason.

Conclusion

Applicants believe this reply is fully responsive to all outstanding issues and places this application in condition for allowance. If this belief is incorrect, or other issues arise, the Examiner is encouraged to contact the undersigned or his associates at the telephone number listed below. Please apply any charges not covered, or any credits, to Deposit Account 50-0591 (Reference Number 33226/324001; P8928).

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